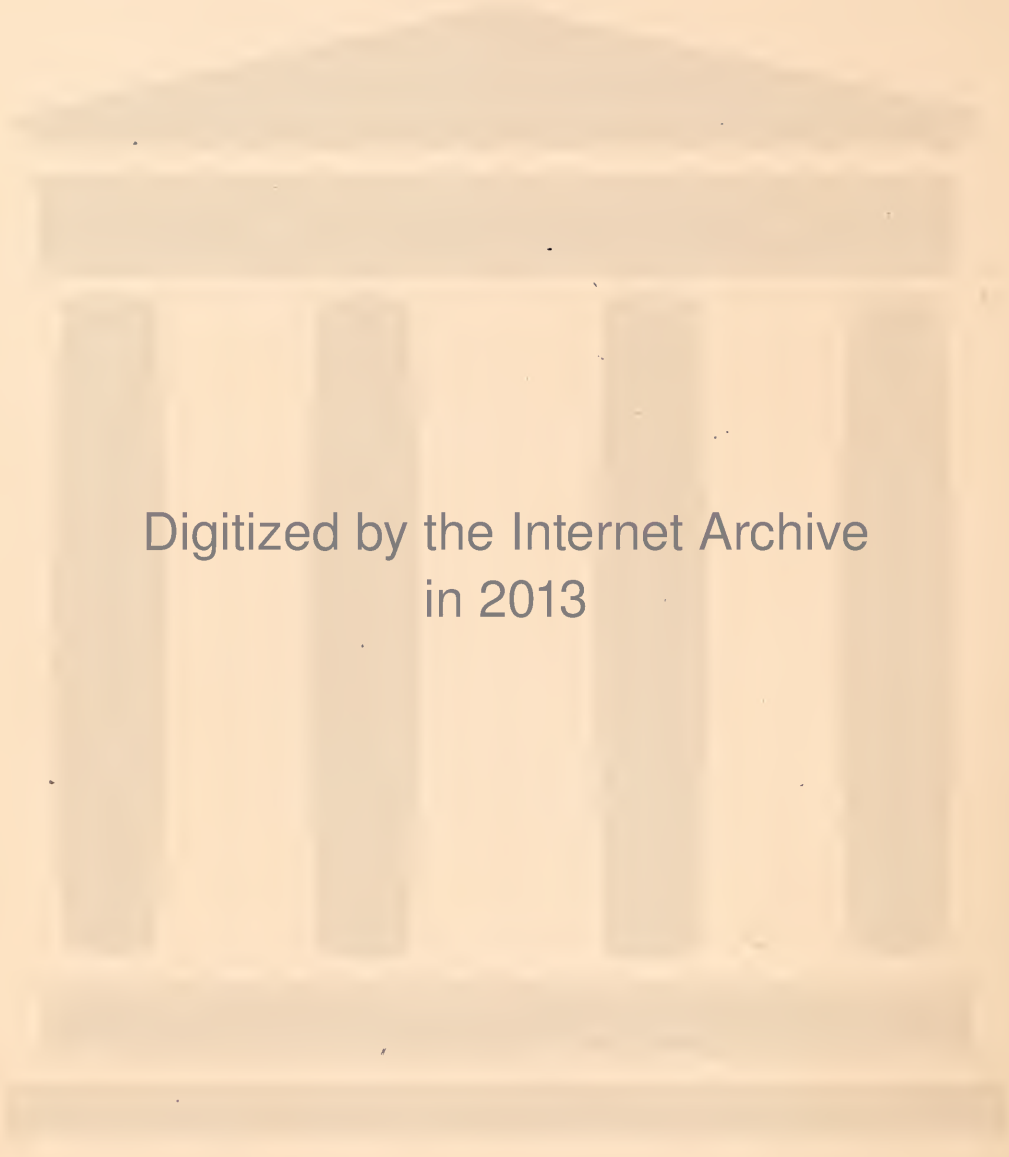

SPECIFICATIONS

FOR THE

MUSEUM OF FINE ARTS,

Boston, Mass.

SPECIFICATIONS

Of the Materials to be provided and Labor to be performed in the construction of a portion of a Building on the corner of St. James Avenue and Dartmouth Street, Boston, for the

MUSEUM OF FINE ARTS,

In accordance with

Plans and Working Drawings made by and under the Superintendence of

JOHN H. STURGIS & CHARLES BRIGHAM,

Architects,

7 Pemberton Square, Boston.

BOSTON:

PRINTED BY T. W. RIPLEY, 138 CONGRESS ST.

1874.

Ref. of $10 1.50

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Apr. 3, 1894

SPECIFICATIONS

DESCRIPTION.

The whole building when completed will be in the form of a rectangle, having a front of 210 ft. on St. James Avenue and the opposite Street, and of 300 ft. on Dartmouth and its opposite Street, the front line of walls being set back 25 ft. from the different Streets, with entrances in the centre of each of the four sides. It will have two interior court-yards, 57 ft. × 86 ft. each. True Dimensions.

The foundations of a portion of the building and the basement brick walls, as high as the bottom of the principal floor beams, also the exterior walls as high as the top of the granite work, including the entrance steps on St. James Avenue, have already (April, 1874,) been built by contracts with Messrs. Wm. C. Poland & Son, of Boston, Mass., Masons, and D. G. Corliss & Co., Granite Cutters, of Randolph, Mass. Work already performed. Part Contracts.

This portion comprises the whole front on St. James Avenue, including the porch. It has a depth of sixty-two (62) ft. on Dartmouth Street, i. e., to the line of the first court-yard. Dimensions of Foundations.

Only a portion of the superstructure over the aforesaid foundations is now to be erected, consisting of the Central Hall and Porch, and the Wing to the right-hand of the Porch, i. e., 119 ft. on St. James Avenue, and 62 ft. on Dartmouth Street, besides the enclosing walls of the lift and the adjoining passages. Dimensions of Superstructure.

This portion is to be completed throughout ready for occupancy.

The building is to be two stories in height throughout, above basement, except at the end on Dartmouth Street, which will have a third story, or gallery, and a loft over the central staircase hall, and a mezzanine story in the passage adjoining the Lift. Stories.

The basement is to be finished throughout for school and other rooms, dressing rooms, and cellar for heating apparatus. Basement.

The first story consists of Vestibule, 23 ft. 4 in. × 15 ft. 6 in.; Staircase Hall, 24 ft. 6 in. × 57 ft. 0 in.; three Sculpture Galleries, 32 ft. 3 in. × 29 ft. 10 in., 32 ft. 3 in. × 23 ft. 4 in., and 32 ft. 3 in. × 32 ft. 3 in.; Board Room, 54 ft. 10 in. × 23 ft. 9 in.; and Egyptian Room, 23 ft. 9 in × 32 ft. 3 in. 1st Story.

The second story consists of two Picture Galleries, 32 ft. 3 in. × 57 ft. 8 in., and 32 ft. 3 in. × 46 ft. 2 in.; two Rooms for Engravings, 23 ft. 9 in. × 23 ft. 4 in., and 23 ft. 5 in. × 29 ft. 10 in.; Staircase Hall, 24 ft. 6 in. × 57 ft. 8 in.; and Ceramic Gallery, 14 ft. 8 in. × 24 ft. 6 in. 2d Story.

The Gallery in third story is to be 32 ft. 3 in. × 57 ft. 8 in. 3d Story.

The Lift, about 8 feet square, with hoisting apparatus, extends from basement floor to roof. Lift.

For arrangement of rooms, methods of lighting, and general construction, see plans.

Height of Stories.

The Furnace Cellar is to finish	15	ft.	4	in.	in height.			
" remainder of Basement, is to finish	11	"	3	"	"			
" Porch, 1st story, " "	23	"	0	"	"			
" remainder of 1st story, " "	18	"	2	"	"			
" Staircase Hall, 2d story, " "	24	"	0	"	"			
" Ceramic Gallery, " " "	21	"	0	"	"			
One Picture " " " "	27	"	3	"	"			
2d " " " " "	18	"	9	"	"			
Engraving Galleries, " " "	19	"	8	"	"			
The Gallery in 3d story, " "	20	"	0	"	"			

General Construction.

The building is to be constructed almost entirely of fire-proof materials, the exterior walls of brick and terra cotta, the interior walls of brick; the floors and roof of iron construction; the roof covering of slate and metal; the stairs of iron; the plastering to be done directly on the brick walls, and iron lath work of ceilings; the interior finish around doors and windows to be of cement.

CONTRACTS ALREADY PERFORMED.

January 1, 1874.

EXCAVATIONS AND FILLING.

Excavating.

The space to be covered by the portion now to be built, i. e., the entire front on St. James Avenue, with a depth of 62 feet on Dartmouth Street, and for an area 8 feet in width all around the same, also for the extension walls for a distance of 25 feet to the rear, is first to be excavated to a depth of 6 feet below the edgestone, on the corner of Dartmouth Street and St. James Avenue. Area.

Gravel.

The gravel excavated is to be piled up on the lot, where convenient, but not so as to interfere with, or obstruct the delivery of materials for building purposes.

For Cutting off Piles.

When the piles have been driven, all further excavating necessary for cutting off the piles and concreting around them, (including the 25 feet in length of extension walls), is to be done; and when the foundations are completed the gravel only is to be replaced, well rammed and filled to the grade of 3½ feet below said edgestone on the inside, and banked up 8 feet wide on the outside, to the top of the stone walls. Fill up to present grade Filling.

the trenches for the extension walls, after the piles and foundations are laid.

The piles, 1,490 in number, are to be driven and cut off by separate contract; they are to be cut off at a depth of 13 feet 6 inches below said edgestone. Piles.

If there is not sufficient clean gravel for filling, then the contractor is to furnish it; it being understood that whatever rubbish, if any there may be found in excavating, is not to be replaced, but is to be carted off. Gravel, Rubbish.

PILING.

The piles are to be of the very best quality, sound, straight, spruce timber, not less than $10\frac{1}{2}$ inches diameter at the butts and $6\frac{1}{2}$ inches at the points, of such lengths as may be required to obtain a good footing. They are to be driven under the direction of and to the entire satisfaction of the superintendents, to reach and get a good footing in the clay bottom, at least to the depths figured on the plan of soundings. Dimensions. Depths.

They are to be cut off at such depth as are required by the plan of foundations, or to obtain, at least, 18 inches of water at low tide over the top of the piles. Cutting off.

The number to be about fifteen hundred. Number

STONE FOUNDATIONS.

The pile capping throughout, including that for the extension walls, which are to project 25 feet from the rear line of present building, is to be of sound granite in good square blocks, not less than 18 inches thickness and of the sizes shown on plans (being on the average about 2 feet by 3 feet.) Pile Capping.

They are to be set solid in cement mortar on the piles; each stone, as far as practicable, resting on two piles. Cement.

All piers in foundations, including the large piers in exterior walls, which are placed beneath all the bearing spaces, are to be built up full height, with good granite blocks. All the remaining foundations, i. e., the intermediate spaces in exterior walls, which are beneath the basement window openings, are to be built with the best Brighton ledge stone, of as good size as possible, and with sufficient thorough stone to make a first-rate job, as good as the materials will allow. The walls and piers are to be of the full thicknesses required by the plans, plumb, thoroughly chinked and well levelled on top with large sized stone, to receive the underpinning or brickwork. Piers. Brighton Ston

All the stone above pile-capping is to be laid solid in lime and cement mortar (half and half). Mortar.

The extension walls above the pile capping are to be broken out from a distance of ten feet at the bottom to nothing at the top, with large granite blocks laid solid in mortar. Extension Wal

DRESSED GRANITE.

To consist of the following Work. — The underpinning course on all sides having, at least, 3 inches depth in every part below the grade line, and of the heights shown upon plans. All the basement window sills and caps (excepting only the sills of certain court yard windows which have no caps.) All the belts, quoins, and set-offs or weathering to the piers between basement windows, and to the buttresses. The sills to two (2) windows in first story on the rear. The broad course around the three principal sides above the basement windows. The mouldings to the buttress piers. The principal flight of entrance steps, and the thresholds to all the entrance doors, &c. — that is to say — all the exterior stonework below the first story brick line, and as represented upon the plans and elevations in blue color.

Underpinning. Sills and Caps. Belts and Quoins. Upper Course. Steps.

The material is to be of the very best quality of Randolph granite, free from all imperfections or rust.

Material. Quality.

All mouldings, tops of window sills, the risers and treads of front entrance steps and door thresholds, are to be fine-hammered.

Fine Hammered Tooled Work.

The washes, weatherings of buttresses and chamfers and narrow reveals are to be handsome tooled work. The large chamfers or bevels of window caps are to have tooled margins with picked centres.

Chamfers.

In all the remainder of the work every stone is to have tooled margins, 2 inches wide, with the remaining portion natural split face; but no drill holes are to be allowed to show in any part of the work.

Margins.

The whole job is to be of the very best description of workmanship; all joints, reveals, rebates, washes, mouldings, cut true and perfect; beds level.

Quality.

All the stones are to be of the full thickness and dimensions indicated by the plans. Where stones overlap each other at inner angles the overlap must be at least 8 inches. Where not particularly shown, it is understood that no piece of ashlar or underpinning is to be less than 8 inches thick in any part.

Dimensions. Bond.

The contractor for furnishing the granite is to do all jointing, trimming, fitting and cutting of lewis holes required upon the work.

Fitting.

BASEMENT WALLS.

Build the basement walls, both interior and exterior, from the top of the stone foundations to the bottom of the 1st floor beams, and set all the dressed granite of the exterior, including the entrance steps and their buttresses, i. e., all the granite below the brick line of the 1st story.

Height of Walls. Granite.

The face work of exterior to be of the best quality of domestic face bricks laid in lime putty colored with lampblack.

Face Bricks.

The remainder of the work throughout is to be laid with the best quality of merchantable "hard" or "light hard" brick, selecting the best for the exposed work in the furnace room and that portion of the rear to be covered by the continuation of the building. Common Brick.

All the basement work below a height of two feet above the line of floor in interior walls, and one foot above the ground in exterior walls, and all arches throughout are to be laid in cement mortar. Cement Work.

All the remainder of the brickwork in best lime mortar. Lime Mortar.

Set the stonework in the best possible manner, in lime and cement mortar. Setting Stonework.

Provide and use all clamps, dogs and irons required to set the stonework. Clamps.

The flues in the interior hollow walls are to be thoroughly plastered. Flues.

The withes are to be continuous in height and thoroughly bonded. Withes.

Make all walls solid at the foot or springing of arches, and at all other places required for strength or for support of stone or ironwork. Solid Work.

Build brick arches for support of entrance steps, and the piers and brick arches under and around vestibule steps. Arches.

Make all recesses and openings for conductors, drains, hydrants and other pipes and for ventilating or register openings. Openings.

Protect the work as well as possible from the weather. Protection.

April, 1874.

CONTRACTS TO BE PERFORMED.

PROGRESS.

The works are to be commenced immediately, and prosecuted with the utmost despatch, so that the roof may be completely finished and covered in tight, before the 1st day of November, 1874.

LABOR AND MATERIALS.

The work is to be performed throughout in the most faithful manner, first class of its kind in every particular, and to the approval of the superintendents; the materials are to be of best quality, and in strict accordance with these specifications, and when not particularly specified are to be of character to correspond with the rest of the work.

MASON'S CONTRACT.

PREVIOUS CONTRACTS.

Foundations and other work already done.

The piling, foundations, and the basement, exterior and interior walls, up to the height of the bottom of the floor beams, or top of the granite work (as the case may be), and the granite entrance steps, are already done. (See previous Specification, pp. 2, 3, 4.)

Granite.

All the granite of exterior (except the granite sills in the rear above the Basement,) is already set.

TERRA COTTA.

Separate Contract.

The Terra Cotta for the exterior decorations is to be furnished and delivered at the building by separate contract, and it is to be filled at the expense of the Committee.

Setting.

The setting, however, is to be included in this contract.

MARBLE AND STONE WORK.

The Terra Cotta, the marble for the interior steps and their buttresses, the stonework for the interior walls of the vestibule, and the tiles for the vestibule and the two basement dressing room floors, are to be furnished by separate contract, and delivered on the spot (see specifications of Marble work), but are to be set by the mason, except the tiling, which will be set by the marble worker.

IRON BEAMS, &c.

Setting Iron Beams.

The iron beams, girders, plates, ties, and all iron work used in the construction of the 1st, 2d, 3d and Mezzanine story floors, also the iron columns, are to be furnished by separate contract (see specifications of iron beams), but are to be set by the mason.

ROOFS AND ROOF COVERING.

Separate Contract.

Staging.

The entire roof construction above the brick walls, the slating, copper roofing, and all other copper work, are to be furnished and built or put on by separate contract, but the mason's staging is to be used as may be required for the purpose of roofing. Any additional staging needed, will be at the expense of the contractors for roofing.

GUTTERS AND CONDUCTORS.

Separate Contracts.

Are to be included in the roof contract.

CONCRETING.

The entire ground surface of basement is to be levelled to the required grade with clean gravel, well puddled, and then grouted with concrete composed of 1 part hydraulic cement and 4 parts clean, coarse gravel, spread uniformly 3 inches thick, except in the two dressing rooms, boiler room, and coal bins, where it is to be 2 inches thick. Levelling. Materials. Thickness.

DRAINS.

Construct an 18 inch barrel drain, from the exterior wal (where shown) to, and properly connect it with, the main sewer on Dartmouth Street, of hard bricks laid in cement, plastered on the inside smooth with cement. Provide and lay drains where shown, and of the sizes required by the plans, from the several conductors, soil pipes, &c., to and connected with the main drain. Barrel Drain. Sizes.

These drains are to be of the best glazed earthen pipe, connections with conductors and soil pipes made by quarter turns, and all others by regular branches, all joints and connections set solid and made tight with cement, and all well brushed out. Material. Workmanship.

BRICKWORK.

Provide and lay all bricks required for the following work, or that may be required to complete any and all work shown by the plans: —

The outer course or facing of all exterior work (including chimney tops) is to be done with the best quality of domestic face brick, fully equal in every respect to those already used in the basement work. Face Brick.

The paving with the best hard paving bricks. Paving.

The interior wall facing or lining of the vestibule and its arches, with the best selected Baltimore face brick. Baltimore Brick.

All the remainder of the brickwork throughout is to be executed with the best quality merchantable "hard" or "light hard" brick, selecting the best for the exposed work in furnace room and that portion of the rear to be covered by the continuation of the building. Common Brick.

No soft brick will be allowed in the work. Soft Brick.

All the basement work below a height of two feet above the floor; all the arched floors between iron beams; the arches under vestibule steps and the coal shoots; and all arches in exterior and interior walls, are to be laid in cement mortar. Cement Work.

The chimney tops in lime and cement mortar, half and half. Chimney Tops.

The face brick work in lime putty. Face Work.

All the remainder of the work in best lime mortar. None but the best quality of Eastern lime, Rosendale hydraulic cement, Quality of Materials.

and clean sharp sand, free from all extraneous matter, is to be used in the work.

Pave the boiler room and coal bins with bricks set on edge. **Paving.**

Under each floor joist in the basement rooms (except those which are specified to be paved), also in the entries, build a continous brick support, 3 courses high, commencing on the concrete with the 1st course 8 inches wide, the other two courses 4 inches thick, all laid solid in cement mortar, leaving occasional openings of one brick for ventilation. The floor joists to be placed 16 inches apart on centres. **Basement Floor. Supports.**

Do all brickwork required to set complete, ready for use, the steam heating apparatus, and for the cold air boxes in connection therewith. **Heating Apparatus.**

The boiler and other heating apparatus are to be provided by separate contract, but only one boiler is to be set under this contract. **Boiler.**

Make the brick ventilating ducts as shown beneath basement floor, and prepare and fit all openings complete, ready for registers, and connect with cold air boxes and ventilating flues. **Ventilating Ducts, &c.**

The exterior walls, except that portion of the rear wall which will be covered by the future extension of the building, are to be faced with pressed bricks and terra cotta, laid and bonded to the backing in the very best manner. **Exterior Walls.**

The lime putty for the face brickwork is to be colored with lamp-black in the proportion of 15 lbs. of black to the cask of lime. The joints of the face brickwork are to be thoroughly filled with mortar. **Black Mortar. Joints.**

The walls above the basement are to be hollow, as indicated by the plans, but are to be made solid beneath window sills, at the top and at the foot or springing of arches, and at all other places where requisite for strength, or support of stone or ironwork. **Hollow Walls.**

The withes are to be continuous in height, and thoroughly bonded. **Withes.**

The exterior work is to be thoroughly pointed and cleaned down at the completion of the job. **Pointing and Cleaning.**

Make the withes under window columns full size of base of columns, solid from the top of underpinning to 1st story columns, and from top of 1st story windows to 2d story columns. **Withes.**

Build the interior brick walls as shown by the plans. **Interior Walls.**

All arches are to be solid, full thickness of wall, and 16 inches deep, laid in cement. **Arches.**

The hollow walls are to be thoroughly bonded, the withes 8 inches thick and as vertical as possible. Make the wall solids under all door and other openings, and at the floors, except where flues are shown continuous to the top. **Hollow Walls and Withes.**

These hollow walls are to have the flues which extend the whole height, or which are to be used for heating purposes, plastered smoothly on the inside. **Plastering Flues.**

Heights. The 2d story interior brick walls are all to be built up to the roof of thickness as per section.

Recesses and Openings. Make all recesses and openings required for the conductors, steam, gas, and plumbing pipes, and hydrants.

Arches between Beams. Turn 4 inch brick arches for all the floors, between the iron beams, laid solid in cement mortar.

Filling. Fill in between beams and above the brick arches, to the thicknesses required by the plans, with solid concrete and brickwork well grouted, into which the plank strips for floor joists are to be laid, and the concrete levelled to the top of them.

Leveller Plates. Channel Irons. Set solid in cement mortar the leveller plates and channel iron beams in the different walls, and back up behind the beams carefully.

2d Story Ceiling. The ceiling over 2d story Hall, central portion, is to be made in the same manner as the floors of 1st and 2d stories, with iron beams and brick arches.

(This does not include the ceiling of that portion over the stairs, which is suspended from the roof construction.)

Chimneys. Build the chimneys as per plans, the flues smoothly plastered on the inside, whole height.

Capstones. The tops to be terminated with a course of North River stone, 4 inches thick, face rough hammered and true, set in cement, and with openings cut through for the flues.

Backing Up. Back up 4 inches thick with brick laid in lime mortar, from the top of exterior walls to the roof covering, where required.

Arches. Turn arches of required thickness over all openings in walls, to be at least 12 inches solid thickness, over all the openings which are 4 ½ feet, and over, in width.

Coal Shoots. Make the two coal shoots with sloping bottoms of hardest brick set solid in cement.

Corbelling. Make all projections, corbelling, and recesses, required for the support or reception of the iron framework of roofs.

Wooden Bricks. Set all wooden bricks required to secure the finish of doors, windows, cornices, &c., as may be directed.

Arches under Steps. Turn arches under the inside vestibule steps, and do all brickwork required to set them in most thorough manner.

Extension. The exterior, where the four walls of the future extension of the building will be joined to the present work, is to be toothed out in brickwork and so left.

Interior Pointing. All interior brick walls not plastered, and which are to be left exposed, are to be laid with a face of the best selected common brick, neatly pointed and cleaned down.

Walls of Boiler Room. The ceiling and walls of boiler room are not to be plastered, but, with all exposed brickwork of heating apparatus, are to be pointed neatly and thoroughly whitewashed.

The interior brickwork of vestibule is to be laid in very best manner in black mortar. Interior Brickwork.

SETTING STONE AND TERRA COTTA.

Set the Terra Cotta of exterior in lime mortar in the most thorough manner, the joints pointed with cement, colored to imitate terra cotta. The terra cotta is to be thoroughly clamped with strong irons to the brickwork, or dogged or dowelled together, wherever required to make first class work. Setting.

The large panels in second story exterior walls, are to be of terra cotta in blocks laid in pattern, well clamped to the walls. Large Panels.

Set the marble steps and their buttresses in the vestibule. Marble Steps.

The stonework of the interior of the vestibule is to be set in best manner in lime mortar.

All stone and terra cotta work is to be thoroughly scrubbed and washed down at the completion of the work. Cleaning down.

MANTEL PIECES.

Provide and set in the 1st story a mantel piece, fire-place and hearth, to cost the contractor $125.00, including soap stone fire-place and hearth (or grate, if one should be used).

MISCELLANEOUS.

The mason is to provide all iron clamps, dogs, ties, &c., required to make a thorough setting of stonework, terra cotta, and brickwork. Clamps, dogs, &c.

Do all jobbing connected with the mason's work, necessary for the proper execution and completion of the works in accordance with the general design. Jobbing.

Protect the walls and terra cotta from injury by the weather, during the construction of the works. Protection to Work.

The materials for casing the terra cotta work are to be furnished and put up by the carpenter. Casing.

Remove all dirt and rubbish from the premises on the completion of the works. Rubbish.

Assist the carpenter to set the door and window frames, and thoroughly caulk and point with mortar around the same. Pointing.

The arches in the rear walls, where future extension is to be made, are to be filled in with thinner walls, as shown, but in such a manner that they can easily be removed at any future time. Temporary Walls.

GRANITE.

Provide and set the granite sills and sill course, above the basement, shown on rear or court-yard elevation. Granite Sills.

PLASTERING.

The walls of vestibule, boiler room, coal areas, lift, mezzanine story and the loft over 2d story staircase hall, are not to be plastered. Walls not Plastered.

The walls and ceilings of the remainder of the building, in basement, 1st and 2d stories, the 3d story gallery or end room on Dartmouth Street, and the ceiling of the vestibule are to be plastered best of three coat work. The 1st coat is to be of strong lime, sand and hair mortar. All the work is to be first-class, true, and straight. 3 Coat Work.

The ceilings of the two engraving galleries, or rear 2d story rooms; the sloping and flat ceiling of the 3d story gallery; the arched ceiling of the Picture Gallery, No. 1; the ceiling of the rear portion of staircase hall, 2d story; and the coved portion of ceilings of staircase hall and two engraving galleries, are to be lathed with corrugated iron or wire lathing, which lathing is to be provided and fixed ready for plastering by separate contract (see Iron Contract). Plastering upon Iron Lathing.

All walls and partitions, except those before mentioned, are to be plastered directly upon the brickwork. Plastering upon Brickwork.

The basement ceilings are to be plastered directly upon the brick arches. Basement Ceilings.

The remainder of the ceilings are to be lathed with the best spruce laths, free from sap or bark, thoroughly nailed, 5 nails to a lath, joints well broken, and not less than $\frac{1}{4}$ inch open. Wood Lathing.

The plastering is to extend to the floor in all cases.

All the plastering is to be done with the best Eastern lime, clean, sharp sand, and best slaughter hair. Materials.

Where doors, arches, or wall spaces are indicated to be filled in with brickwork temporarily, the spaces are to be plastered same as other walls, Temporary Work

STUCCO WORK.

Run stucco cornices in the 1st and 2d story rooms, vestibule, passages and hall. Run mouldings at the springing and crown of the various arched and coved ceilings, and around the openings of the different ceiling lights. For outline of mouldings and cornices, see sections and detail drawings. Cornices. Mouldings.

The splays around windows are to be in stucco. Window Splays.

CEMENT WORK.

The architraves, jambs and soffits of all the doorways, and of the arched openings in the interior walls; the architraves and sill mouldings of windows throughout (except the basement window- Exceptions.

sill casings, and those of the Tosti collection room in the 2d story, which are to be wood, see carpenter's contract) and the base and base mouldings throughout, are to be run and finished in the best of Portland cement. Base.

The ornaments of architraves are to be in the same material. Ornaments.

"PLUMB" PARTITION.

The partition in 2d story between "Tosti Collection" Room and the adjoining room, is to be made of 6 inch hollow bricks, of the manufacture of C. M. Plumb & Co., properly stayed at the top.

CARPENTER'S CONTRACT.

FLOORS.

In the basement (except the boiler room, and coal bins, which are to be paved, and the two dressing rooms, which are to be tiled,) there are to be floor joists of 2×4 inch hemlock plank, laid upon continuous supports of brick, placed 16 inches on centres. Floor Joists.

In the 1st and 2d stories, the 3d story gallery, or end room, and the loft under roof over central Hall (but not including the vestibule, which is to be tiled), joists or scantlings, 2×3 inches, are to be laid in the concreting of floors, not exceeding 16 inches on centres (The carpenter is to lay and level these scantlings, upon the brick arches of floors and the concrete haunches, but the filling of concrete between and to the top level of scantlings, is to be done by the mason). Scantlings upon Floor Arches.

The basement, 1st and 2d stories, 3d story rooms over central Hall and end room, (but excepting those rooms which are before specified to be paved or tiled) are to have two courses of floor boards; the under course of the very best hemlock boards, free from shakes, sound and well seasoned, mill planed on one side; and the upper course of heart hard pine of best quality, straight grained, kiln dried, one inch stock, not exceeding $4\frac{1}{2}$ inches in width, jointed in basement and matched elsewhere, strained, all blind nailed, except in basement, and well smoothed up. Under Course. Upper Course. Blind Nailing.

The floor boards are not to be laid until the concreting is thoroughly dry.

Lay a course of extra thick paper between the upper and under floors, throughout; the edges well lapped and tacked down. Paper.

ROOF BOARDING.

Flat Roof

The flat pitched roof over rear 2d story rooms is to be of No. 5, planed and matched pine boards, well seasoned, laid upon wooden purlines, fastened to the iron rafters, and prepared complete for coppering.

CENTRES.

Arch Centres.

The carpenter is to construct and put up in place all the centres required for the arches of all kinds, throughout the building (for doors, windows, floors, openings in walls, &c.); and at the proper time, when directed by the superintendents, he must ease the centres, take them down, and, when no longer needed for further use on the building, remove them from the premises, but not destroy them. They are to belong to the building, as they will be needed in the extension.

Removal.

Supports.

The carpenter is to make and place sufficient supports, resting upon the floor below, for sustaining the centres for the floors and arches, so put up that the centres can be eased at any time, and taken down without damage.

Supports for Iron Beams.

Where the length of the iron beams exceeds 16 ft., the beam must be supported, so as to take the weight of beam and its load; the supports to remain until the mortar of the arch is perfectly set and hard, so as not to deflect the beams.

CASING AND PROTECTION OF STONE WORK.

Casings.

The carpenter is to furnish and put on to the arrises and upper surfaces of the hammered granite and terra cotta work, which may be exposed to injury during the progress of the building, suitable guards and casings; cover the buttresses and steps, case the columns in vestibule, and take these guards down at the direction of the superintendents. He is to be responsible for all and any injury the stone work may sustain in consequence of neglect of this requirement.

Injury.

SHORES.

Shoring Centres. &c.

He must furnish all lumber required for shoring up any of the walls, beams, centres, &c., required; but this is not to be understood as applying to any of the mason's or roofer's staging, which is to be furnished and put up by them.

Staging.

FURRING, GROUNDS, &c.

Furring.

Do all furring required upon any part of the work, *below the roof*, and fully prepare for lathing and plastering by putting on grounds, brackets for cornices, &c.

The ceiling furring in 1st story, throughout, and in the central portion of 2d story Hall, the Picture Gallery No. 2, in 2d story, and the passages next to the lift, is to be of pine plank pieces, let into the arches between iron beams, placed 3 feet apart on centres, on the under side of which are to be placed sound dry cross furring, $\frac{7}{8} \times 2\frac{1}{2}$ inches, 1 foot on centres, levelled, and thoroughly nailed. Plank Furring. Cross Furring.

The remainder of the 2d story ceilings, above the springing of the arches on the walls, and the flat and sloping ceiling of the 3d story gallery, are to be furred with plank pieces, properly attached to the iron rafters, at suitable distances apart, for lathing with iron or wire laths (furnished and fixed by the iron worker). Wire Laths.

The coved portions of ceilings in 2d story (except that of Picture Gallery No. 1, which is to have iron furrings, furnished and fixed by the iron worker,) are to be furred with plank, at proper distances apart, for attaching the wire lathing. Coved Ceilings.

Furnish all wooden bricks, &c., of sound dry stock, to the bricklayer as the work proceeds, as required, and in season to be inserted in the walls in such places as are required for convenience of securing all furring and finish. Wooden Bricks.

It is understood that the copper and iron workers will furnish and do all carpentry work of moulds and furring, required for their work upon the gutters, hip and ridge coverings, and clear story windows and ventilators. Furring for Gutters, &c.

WINDOWS.

All the external basement windows, seven of the 2d story, and all the 1st story hall windows in court yard, and the windows in interior partitions, are to have sashes, sliding up and down, and boxed window frames, with parting and stop beads. Sliding Windows

The sills of all windows are to be of 3 inch white pine plank; pulley stiles, $1\frac{1}{8}$ inch thick, of hard pine; parting and stop beads of hard pine or cherry; and the frames and staff mouldings of white pine. Sills. Beads.

The inside exposed finish of window casings and sills is to be of cherry; sashes of white pine, $2\frac{1}{2}$ inches thick; the sliding ones hung with cast iron or lead weights, of accurate balance, upon 2 inch axle pulleys, brass or bronzed faced, with steel pintles, and best of braided flax cord. There are to be pockets for all weights. The fastenings are to be worth $5.50 per dozen. The lower sash of sliding windows are to have bronze sash lifts, two to each sash, and eyes at top. Inside Finish of Windows. Weights, &c. Fastenings.

The 1st and 2d story windows, except those before specified, are to be French casements, fitted, hung and fastened with Robinson's best Espagnioletti bolts, with one extra brass flush bolt at bottom of one half. Only the parts below the transom are to open. French Casements and Fastenings.

Wood. Window Sills.

The basement and "Tosti Collection Room" window sills are all to be cased in, to the inside of the walls, with plank stool casing, and mouldings in cherry.

Jambs.

The jambs and heads of these windows, and the jambs, heads, and sills of other windows, are, however, to be finished in plaster or cement, to the frame or box casings, by the stucco worker.

Side Lights.

Make the top and side light sashes of all outside doors, of best clear white pine, and of the inside doors of cherry. The sidelights of basement doors are to slide up and down, and are to be hung and trimmed in same manner as the windows.

Basement.

Skylights, &c.

It is understood that the sky, ceiling and clere-story lights, sashes and frames do not belong to the carpenter's contract, but are to be made in iron.

DOORS.

Frames.

The doors, throughout, are to have strong pine plank frames, securely fastened: the outside ones set in rebates in the masonwork, and strongly dowelled into the stone sills.

Stops, Casings, and Beads.

The frames are to be rebated, and are to have casings and beads of cherry, except outside casings and finish of outside doors, which are to be of pine painted on Court Yard, and of oak at Front Entrance.

Make the Court Yard entrance doors (except centre one) with top and side lights, as shown by the drawings.

The thresholds are to be of the best hard pine in the basement and of cherry above.

Sizes.

The doors are to be of the sizes shown on the plans, 6 panelled, (except outside and Vestibule, which are to be as shown by drawings, and the W. C. doors,) all with raised mouldings.

Mouldings.

All doors are to be made of three thicknesses, put together in the very best manner.

Stock.

The stock is to be of best quality, perfectly kiln dried cherry (except front and Vestibule, which are to be of oak, and dressing-rooms in basement, which will be of ash).

Hanging and Trimming.

They are to be hung to the jambs with best japanned butts in basement, and bronze butts elsewhere, $4 \times 4\frac{1}{2}$ inches, 3 to each side, and trimmed in 1st and 2d story with bronze knobs worth $5. per pair, and in basement with knobs worth $2. per pair, and with mortice locks worth $24. per dozen, on the average.

Basement Doors.

The outside centre basement doors are to have heavy iron spring bolts on the inside, at top and bottom, with chains and suitable fastenings.

Front Entrance and Vestibule.

The front entrance and Vestibule doors are to have large brass Espagnioletti bolts on one half of each, extra heavy best bronze butts and knobs, and locks worth $10. each.

The basement outside doors are to have locks worth $5. each, and extra heavy bronze knobs.

The water closet doors are to be plain, flush moulded, 4-panelled doors, hung with japanned butts, and trimmed with good handles and bolts on the inside, and with locks worth $9. per dozen. W. C's.

INTERIOR FINISH.

The door and corresponding arch openings in 1st and 2d stories are to have panelled jambs, soffits, and architraves of Portland cement, as shown on the plans, finished by the stucco worker so that the door jambs and window casings will have a simple wooden bead or moulding around them, fitted against the cement work. Jambs, Soffits, and Architraves.

All the wood finish to be of the best quality kiln dried cherry, except dressing-room in basement, which will be finished in best brown ash. All the joinery is to be first class work in every particular, smooth planed and perfect. Stock.

STAIR RAIL.

The carpenter is to form, put up and secure to the balusters (which are to be of iron), the handrail of principal stairs. It is to be of the best mahogany, double, five inches deep and 8 inches wide, moulded as per detail drawings. Handrail Principal Stairs.

STAIRS TO ROOF.

Build a small flight of stairs to the roof, with pine plank stringers and carriages; hard pine risers and treads; 1 inch moulded nosings; $1\frac{1}{2}$ inch plain round balusters; rail ogee $2\frac{3}{8} \times 4$ inches; posts, plain turned or chamfered $4\frac{1}{2}$ inches square. Stock.

Make a neat railing of pine plank around the opening of stairs in the loft. Railing.

Build a flight of hard pine plank steps to the boiler room floor, with 4 inch posts, and plain rail and balusters. Boiler Room Stairs.

DRESSING ROOMS.

Do all the woodwork required to finish complete, in handsome manner, the Water Closets and wash bowls. The seats of water closets are to be of cherry. W. C's & Bowls.

The partitions are to be of $1\frac{1}{8}$ inch sheathing, planed, matched, and beaded, with grooved plank sills, placed one inch above floor, and moulded caps. Partitions.

Doors are to be hung to rebated plank jambs. Doors.

Line up beneath the bowls in a neat and handsome manner, with sheathing in narrow widths, planed, matched, and beaded. Sheathing.

Make a neat chamfered plank stand for the soapstone sink.

All the above finish is to be of best brown ash, well smoothed up. Stock.

PLUMBERS' CARPENTRY.

Reservoirs. The carpenter is to make two reservoirs or boxes of pine plank, 6 ft. × 2 ft. × 2 ft. in the clear, to be lined by the plumber, and placed over the water closets. The bottom, sides, and ends are to be cased up with ash. Make suitable doors for access to them.

Strips. Put up all furrings and strips of wood required for the plumbing pipes, and where exposed make them of ash or cherry, planed and beaded in neat manner.

PLATFORMS AROUND SKYLIGHTS.

Platforms. The carpenter is to provide and lay spruce plank platforms 3 feet wide, planed and cleated on under side, upon the tie rods of iron roof around the ceiling lights of the two large picture galleries. Build two stepladders on each side from thence to the clere-story windows; also three other stepladders, where required for access to other parts of roof, with plank platforms leading to them, making ten in all. These platforms and stepladders are to be protected by a plank rail on one side of platform, and on both sides of the steps, with proper posts and supports.

Stepladders.

Railing.

VENTILATION AND HOT AIR APPARATUS.

Radiators. The carpenter is to box around the radiators or steam coils, which are placed beneath the basement ceiling in the two dressing rooms and boiler room, and to connect the same, as directed, by cold air ducts with the openings in outer walls, and to make all dampers required therefor, and to do all carpentry work required for fitting up the heating apparatus complete.

Ducts.

Stock. The boxing for radiators, and the cold air ducts are to be made in thorough manner of kiln-dried matched pine boards, upon strong frames, all planed and made as tight as possible. The exposed portions in the dressing rooms to be sheathed with ash, planed, matched and beaded, in narrow widths.

Finishing.

Wire Nettings. The openings in outside walls are to have wire nettings in frames.

Sashes. The two in boiler room to have sliding sashes at the outer openings, and another sash on the inside of duct, so as not to obstruct light.

MISCELLANEOUS.

Partition. Build the partition in the basement "cloak" room $7\frac{1}{2}$ feet high of $1\frac{1}{8}$ inch sheathing, planed, matched and beaded, with grooved plank sills placed one inch above floor, and moulded caps.

Build of spruce plank, with proper framework, the partitions and fronts of coal bins, with movable plank set in grooved jambs, and suitable openings at bottom. Coal Bins.

Make and set two hard pine posts, 7 ft. × 7 inches square, planed and chamfered where directed, for the lifting apparatus, from the basement floor to a height of 8 feet above the loft floor, under roof, with a beam of same dimensions across at top, and fasten them securely to the walls. Hard Pine Posts for Lift.

The lifting apparatus itself is to be furnished and set up by separate contract.

Make strong, hard-wood movable bars or guards across the bottom and inside of doorways to the lift in 1st and 2d stories. Guards.

The contractor for the lifting apparatus is to do all other carpentry work connected with his work. Lift.

Make a strong, planed pine plank stand for the sink in boiler room. Sink.

PAINTING AND GLAZING.

PAINTING.

Furnish all the glass, paints, oil and other materials, of the best quality, and do all the work in first-class manner throughout, necessary to the entire completion of the building,—excepting the following work and materials, i, e., the roof skylights and the clere-story lights; the glass for which is to be furnished and set by the contractor for the roofing work, also the first two coats of paint for all the following iron and copper work, i. e., the frames of the skylights, all the finish and sashes of clere-story in roof, the ventilators in roof, the ridge and hip coverings, and all other copper ornamentation of exterior, and the first coat of all iron crestings, finials and railings of exterior; but the third coat of the aforesaid iron and copper work, and the second and third coats of the aforesaid crestings and railings are to be included in this contract. Stock. Items not to be included in this Contract. Last Coats to be included.

All the other metal work, i. e., the frames of the ceiling lights and the mouldings and the ventilating frieze beneath them, the iron stairs and balustrades complete, the railings around the lights in 3d story end gallery, the rain water conductors both inside and outside of the building, the hydrant pipes where exposed, are to be painted three coats of the best metal-preserving paint. Metal Work.

All the exposed outside pine woodwork of doors and windows, and the outside of sashes are to be painted three coats of colors, as directed. Outside Woodwork.

Walls in Oil. The walls of the staircase hall and the dressing rooms in basement, and the walls of the entire 1st and 2d stories below the mouldings of cornices, or at the springing of arched ceilings, and the upright walls of the gallery in 3d story, are to be sized and painted four coats of oil colors, as directed.

Vestibule not Painted. The walls of the vestibule, being entirely of brick and stone, require no painting.

Distemper. The cornices, mouldings and ceilings above the vertical walls in 1st and 2d stories, and in the gallery in 3d story, are to be painted in distemper, in plain tints, as directed, but without line or decoration painting other than to make different members of cornices and mouldings of different tints.

Iron Roof Frame. The painting of the iron frame of roofs is not to be included in this painter's contract, but belongs to the iron contractor.

Oil Finish. All the hard-wood finish of interior and the doors are to be filled and oil polished in best manner.

Sashes, &c. The inside of sashes to be stained and varnished two coats. The stop beads oiled and varnished. The pulley stiles oiled.

Painting of Cement Work. The jambs, architraves, and other finish around doors and windows and the base mouldings, which are in cement, are to be painted in oil, four coats.

Beams. Paint three coats the exposed under side of beams in basement.

GLAZING.

Double Thick Cylinder. The basement windows, side and toplights to the rear, and lift doors, the round windows in front gable over porch, and in mezzanine story, the sashes for dampers to the cold air boxes in boiler room, both inner and outer, are to be glazed with best double thick Berkshire or German cylinder glass, carefully selected.

Ground. The sashes in interior partitions, and lights in doors, are to be glazed with same glass, ground.

⅜ inch Hammered. The lights in the vestibule on either side of the steps are to be of ⅜ inch hammered glass of best quality; also the coal-hole lights.

Ceiling Lights. The glass in all the ceiling lights (including 2d story end room) is to be of the best selected ground double thick German or Berkshire.

Plate Glass. The 1st and 2d story windows throughout, the windows in gables (except round window), and the top lights over front and vestibule doors, are to be glazed with best quality French or English plate glass.

Skylights in Clere-story. *Memo* The glazing of the skylights and the clere-story, in roof, are not included in this glazier's contract, but belong to the skylight contractor.

PLUMBING.

In the Basement Story.

There are to be water-closets, bowls and urinals where shown in the two dressing rooms, a soapstone-sink in the adjoining room, and an iron sink in boiler room. See Plans.

The water-closets are to be best English enamelled double valve pan closets, each set supplied by a cistern overhead $6 \times 2 \times 2$ feet, lined with 5 lb. lead, with service boxes, copper balls and ball cocks properly hung to operate by the doors. S traps of 4 inch lead. The soil pipes of iron, 4 inch, connected with drains. W. C's. Soil Pipes.

The bowls to be 16 inch, set in 2 inch dished marble slabs, with 12 inch backs and ends. The bowls are to be clamped to the slabs with brass clamps. They are to be supplied with cold water. The cocks, plugs and chains are to be close-plated. Waste pipes $1\frac{1}{2}$ inch, 4 lbs. to the foot. Traps 6 inch round. Bowls. Cocks.

The urinals are to be best Bedfordshire, with flat high back, medium size. They are to have nickel-plated urinal compression cocks, and 2 inch lead waste pipes, 5 lbs. to the foot, properly trapped. Set a large brass top cesspool in the floor, under each, with 3 inch iron pipe to drain, and line up in handsome manner with lead around it. Urinals. Cesspool.

The divisions between the urinals are to be of marble, $1\frac{1}{2}$ inch thick, with rounded edges, neatly fitted and securely fastened with copper or brass clamps.

The soapstone sink is to be supplied with cold water, and is to have a brass hose bibb, and large sized brass cesspool. The waste pipe is to be of lead, 2 inch, 5 lbs. to the foot, and is to have a 6 inch round trap. Sink.

The distributing pipes to bowls, closets, urinals, and soapstone sink, are to be of brass $\frac{3}{4}$ inch, and to the sink in boiler room of lead $\frac{5}{8}$ inch. Pipes.

The iron sink in boiler room is to be 24×36 inches, and is to have a brass cock and hose bibb, 2 inch lead waste pipes, 5 lbs. to the foot, suitably trapped.

HYDRANTS.

There are to be ten hydrants, in the places designated on the plans, with 2 inch hose cocks, and detached levers. The main hydrant pipe is to commence and be properly connected with the supply from the main at the basement wall, on Dartmouth end of Hose Cocks. Main.

corridor, and is to be laid the required length under the basement floor. It is to be of galvanized iron, 2 inches diameter in the clear. From this pipe are to be carried the vertical pipes to the hydrants, of 2 inch galvanized iron, in the flues of partition walls. Vertical Pipes.

(A recess will be left 4 to 5 ft. in height at each floor, for access to the pipes.)

The whole job of plumbing is to be done in thorough, first class manner, and is to include everything complete, ready for use — connection being made with the supply pipe, which is already brought to the inside of basement wall near Dartmouth Street. Quality.

GAS PIPING.

Provide and do all gas piping required for burners in the various places designated on the plans. Reference.

Those on the walls are to be of sufficient size to supply four burners at each point designated, and are to be placed at such height from the floor as shall be directed by the superintendents. Pipe on Walls.

Pipes are to be carried to each end of every ceiling light, and are to be of sufficient capacity to supply burners, if placed every two feet apart around the openings. These supply pipes are to be so arranged that the pipes for the burners can be conveniently attached. Ceiling Lights.

There are to be pipes for four burners in different places in the loft over hall, and in ten places on the walls of 3d story gallery or end room, and in three places in the loft under the middle roof. Pipes not shown on plans.

The pipes are to be of the standard quality and regulation size for the required number of burners, and the work is to be done in the very best manner; the pipes capped, tested, and warranted tight. Quality. Capping.

BELLS.

Provide and fix bells for each of the outside doors. Bells.

The front door bell is to be hung in the basement entry, near the foot of the stairs, and the others above the doors.

The pulls are to be of bronze, to correspond with the knobs of the doors. Pulls.

The wires are to be of copper, carried in tin tubes beneath the plastering. Wires.

IRON AND ROOFING CONTRACTS.

IRON WORK OF FLOORS.

The 1st and 2d stories, the gallery floor or 3d story end room, the floor of loft over central portion, and the mezzanine floors of passage next to the lift are to have iron floor beams, with brick arches between. The mason is to set all the iron work used in the construction of these floors. **Setting.**

Provide and deliver at the building all the iron beams, channel irons, box girders, leveller plates and all straps and ties required, as shown by the plans, and do all blacksmith's work of fitting them which may be required. The lengths and distances apart are shown by the plans. **Providing.** **Reference.**

The 1st floor beams are to be $10\frac{1}{2}$ inches deep, 45 lbs. to the foot, except where shown otherwise. **1st Floor.**

Over the corridor and in the vestibule, and the short pieces beside the staircase, they are to be 7 inches deep, 20 lbs. to the foot.

The 2d floor and "Gallery" beams are to be $12\frac{1}{4}$ inches deep. Those of more than 25 feet in length are to weigh 60 lbs. to the foot, and the remainder $41\frac{2}{3}$ lbs. to the foot. **2d Floor.**

The beams over 2d story Hall are shown on the vertical section, No. 55. **2d Story Hall.**

The mezzanine floor of passage adjoining lift, and that portion of loft floor over it are to have 8 in. beams. **Mezzanine Floor.**

Provide the beams in rear wall, over the portions which are to be removed in the event of the future extension of the building, and marked × × on Court-yard Elevation, No. 35. **Beams in rear Wall.**

The channel iron beams, which lay in the walls, are to be 6 in. × $2\frac{1}{4}$ × $\frac{1}{2}$. **Channel Beams.**

The box girder, "V," at head of stairs, is to have a flange on one side. **Box Girder.**

The 15 in. beams over 2d story Hall, at W. W., are to be bolted together. **15 in. Beams.**

Beams which are shown by the plans to be tied together at the ends, are to have ties 2 in. wide by $\frac{3}{8}$ in. thick, 2 feet long, bolted through each beam with $\frac{1}{2}$ in. bolts. **Ties.**

The iron floor beams around Staircase and Gallery floor openings, are to be framed and strapped to the headers in thorough manner. **Openings.**

The three beams supporting roof over central Hall, marked S.S.S., on Section No. 55, belong to roof contract. **Beams in Roof.**

Where two or more beams are shown side by side, they are to be thoroughly bolted together. **Bolted Work.**

Leveller Plates. The ends of all the beams are to rest upon leveller plates of wrought iron 6 in. × 18 in. × $\frac{3}{8}$ in. thick, bedded in the brickwork in cement.

Ties. The beams are to be tied together transversely at top, with ties of wrought iron $1\frac{1}{2}$ in. wide, $\frac{3}{8}$ in. thick; those for tying the beams transversely are to be made to fit over the flanges of the beams.

Blacksmith's work. The bending of the straps, and the drilling of the holes for bolts, in the ties and beams, are to be done at the expense of the contractor for the iron beams.

Ties. The upper transverse ties at the outside walls are to be made as anchor irons, with bends 6 inches each way. There are also

Anchor Irons. to be other anchor irons at outside walls, where shown, bolted to ends of beams.

Ceiling Beams. The ceiling over "Ceramic Gallery" is to have 4 inch beams hung from above.

Girders. If desired, the contractor will be allowed to use bolted girders of equal strength in place of the heavy 12 inch iron beams, and box girders in place of the 15 inch, and other beams.

IRON COLUMN.

Dimensions. Provide an eight inch iron column, with heavy Tuscan base and capital. The shell to be 1 in. thick. It is to have cast iron plates, 12 in. square at top and bottom and 2 in. thick.

Setting. It is to be set by the mason for the support of the corner of passage walls.

ROOF CONSTRUCTION.

Slated Roof. The roof construction throughout is to be entirely of iron, consisting of iron trussed rafters with purlines for slating upon,

Rear Roof. with the exception only of the rear flat pitched roof, which will have iron rafters but wooden purlines and boarding, upon which to lay the copper covering.

General Construction. The general construction of the roof is to be in accordance with the drawings furnished; but where it may, in the judgment of the builder with the concurrence and approval of the architects, be found desirable to change or modify the dimensions or weights of particular parts not affecting the principle nor general design of the trusses, such modification may be made, provided an equivalent in strength and weight shall be given.

Reference. The position, distances apart, dimensions and details of the trusses are shown by the plans.

Central Roof. The trusses over the Picture Gallery No. 1, are to be "scissor trusses" in principle, but the curved forms for the coved ceiling are to be connected with and form parts of the construction, so as to carry a portion of the weight lower down on the walls. In these trusses the principal rafters are to be double angle irons,

3 in. × 3 in. × $\frac{3}{8}$ in. The principal ties, 4 in. × $\frac{1}{2}$ in. flat—part single and part double—braces $2\frac{1}{2} \times 2\frac{1}{2} \times \frac{3}{8}$ T iron, and the curved ceiling forms $3 \times 3\frac{3}{4} \times \frac{1}{2}$ T iron.

Ceiling Lights and Clere-story.

The roof is to be so constructed that the ceiling light frames may be hung to it, and the clere-story frame put upon it so as to be free from strain or sag.

Roof over Hall.

The roof over the hall is to have simple king and queen trusses, supported at the ends upon 15 inch iron beams.

Clere-stories.

The frame of clere-stories and their roofs is shown by the sectional drawings. Make the plates, sills and ridgepoles of suitable size and strength.

Rear Roof.

The rear flat pitched roof over the two rooms is to be constructed with trussed rafters, same distance apart as the trusses of main roof. The rafters to be $3 \times 3\frac{3}{4} \times \frac{1}{2}$ T iron. King post $2\frac{1}{2}$ in. tubing, principal straining rods $1\frac{1}{4}$ round iron.

Ties.

Provide and run all horizontal ties for these rafters necessary to make good work.

Iron Beams.

Over the Staircase Hall the rafters are supported by an intermediate 12 in. iron beam.

Ceiling Joists.

To these rafters hang iron joist for the ceiling of the two rooms and Staircase Hall below.

Steep Roofs.

The steep pitched roofs over Ceramic Gallery and End Gallery are to have webbed trusses, as per drawings. The web to be of No. 7 iron, $7\frac{5}{10}$ lbs., with flanges of $2 \times 2 \times \frac{1}{4}$ angle iron on the inside, and $2\frac{1}{2} \times 2\frac{1}{2} \times \frac{3}{16}$ angle iron on the outside—all thoroughly riveted together.

Miscellaneous.

In all these trusses the minor ties—the straps, bolts, rivets, and other iron work are to be of ample size and strength—and where ties, braces, struts, plates, and other iron work necessary to a complete construction of the roof, are not particularly shown or described, such iron work is to be done in the best manner.

Shoes.

All the trusses are to have suitable shoes, resting upon large iron plates, bedded in and secured to the walls.

Anchor Irons.

Provide all necessary anchor irons.

Purlines.

The purlines for slating are to be of angle iron placed $10\frac{1}{2}$ in. on centres thoroughly secured to the rafters.

Quality of Stock.

All angle and T iron wire in the work is to be the Phœnix & Co.'s of Philadelphia best. Bar iron and bolts equal to their best. Rivets, Burden's (Troy) best quality. Plates, C, No. 1.

SLATING.

Size.

The steep pitched roofs, i. e., all except the rear flat pitched roof, are to be slated with the very best quality of Eastern slates, 12 in. wide and 24 in. long, put on with 3 in. head cover, and attached to the purlines in the best manner, with strong copper wires, well clinched.

Head Cover.

Copper Wires.

Rendering. The head cover and all joints on the inside are to be thoroughly pointed or rendered with lime and hair mortar tempered with cement.

Valleys. Make the valleys of 18 oz. copper, 20 inches wide.

Flashing. Flash around the chimneys, pinnacles, gable terminations and ventilators, with 16 oz. copper or 4 lb. lead.

Hips and Ridges. Flash to the grounds on the hips with 4 lb. lead, and beneath the sill of clere-story windows, for their entire length, with an apron of 4 lb. lead, 18 inches wide, extending up behind and fastened to the backside of sill. Particular care is to be taken to make the hips and ridges thoroughly tight, before the copper ornamentation is affixed. This ornamentation will overlap the slating at least three inches.

COPPER ROOFING.

Rear Roof. Flashing. Cover the flat pitched roof of portion upon the court-yard with 16 oz. copper, thoroughly flashed at the brick walls and around the skylights and at the clere-story windows.

Quality. Tho whole job of roofing is to be done in the most thorough manner, and is to be warranted tight and durable.

TEMPORARY ROOFING.

Roof over Lift. The roof over the lift is to be slated temporarily.

Roof over Passage and Dressing Room. The adjoining roof over passage and the dressing-room in basement is to be covered with good tar and gravel roofing, properly flashed.

GUTTERS.

Material. The roofs are all to have eaves gutters, made in the most thorough manner of 20 oz. copper, 22 inches wide.

Bars. They are to have for a strengthener a wrought iron bar $\frac{1}{2}$ in. thick × 2 in. wide, covered completely by the copper and stayed every two feet to the iron roof with stout wrought iron ties.

Straps.

Temporary Roofs. The temporary roofs are to have suitable gutters and conductors connected with the drains.

CONDUCTORS.

Material. There are to be eight conductors, made of the best 18 oz. cold rolled copper, $4\frac{1}{2}$ inches diameter.

Connections. They are to be properly connected with the gutters at the top and with the leaders at the bottom.

Fastenings. They are to be fastened to the walls securely with heavy iron dogs.

Outside. Inside. The three at the rear are to be carried on the outside of the walls, and the remainder upon the inside, in the spaces in the exterior walls.

Access. *Memo.* Openings are to be left by the mason, and small doors are to be made by the carpenter, for access from the inside to these conductors, which are carried in the wall spaces.

Provide and set cast-iron leaders $4\frac{1}{2}$ inches diameter and six feet long, at the foot of each conductor, and connect them properly with the drains. Leaders.

COPPER ORNAMENTATION.

The work to be done consists of the entire exterior finish of the clere-story in roof, both front and rear; the gablets over the front clere-story pilasters, the five ventilating turrets, the covering of all ridges and hips and their ornamentation, the ventilators to the pavilion roof skylights, and the exterior finish around the skylights.

It is all to be done with the best 26 oz. copper, put together, and brazed or fitted to make tight work, and of the best quality in respect of quality and finish. Weight.

It is to be well rolled before using; is to be free from all kinks and buckles, with smooth surfaces, true and perfect angles, free from cracks, and is to be put up straight, true and plumb. Quality.

All joints, seams and mitres are to have at least one inch overlap (except mitres of curved work), and are to be well brazed and thoroughly riveted, where necessary, to make first class work. Joints. Angles.

The mitres of curved work are to have cleats brazed on behind.

The cornice of clere-story is to be thoroughly riveted to the iron frame-work, and the copper is to extend at least three inches upon the roof. Cornice.

The front edge of clere-story sill is to have an under flange, forming a groove to receive the slating, which is to extend under at least 4 inches. Clere-story Sills.

A similar method of treatment is to be used for the ridge mouldings and slating. Ridge Mouldings.

The copper ridge and hip mouldings are to be secured to the roof framing by $1\frac{1}{2} \times 1\frac{1}{4}$ inch wrought iron forms or braces, firmly riveted, placed sufficiently near together to make first-rate work; and wrought or cast-iron forms are to be used for securing all other copper work, as far as practicable. Forms.

All work coming in contact with brick or terra cotta work is to be thoroughly flashed. Flashing.

CLERE-STORY SASHES.

The clere-stories are to have wrought iron sashes set in iron frames, as per detail drawings. Frames.

They are to be nicely fitted, true and perfect, hung or pivoted on the centre of sides, so as to swing in and out, and are to be made water-tight when shut. Pivots.

The sashes are to be provided with strong fastenings to hold when either open or shut, or when open at any angle, by means Fastenings and Adjustment.

of gearing or levers so arranged that any section of four or five sashes may be operated at once by one lever or crank.

Fitting Copper Work.

The copper work is to be so fitted around the frames and sashes that no water can possibly get between the iron and copper, and extra heavy lead flashings are to be used wherever required to prevent this.

Glazing

The sashes are to be glazed with best double thick Berkshire or German cylinder glass set in putty.

VENTILATORS.

Exterior.

The exterior finish of the ventilators is to be of 26 oz. copper.

Ventilating Turrets.

Those upon the centre roof are to be made with dampers or swivel slats in four of the sides, so arranged that by means of a rope below they may be closed when necessary, and then be rain and snow tight.

Finials.

These ventilating turrets are to have ornamental iron finials of pattern designed or selected by the superintendents, worth $20 each.

Skylight Ventilators.

The skylights in the pavilion roof are to have 8 inch automatic ventilators, of pattern to be approved by the superintendents.

IRON FRAMEWORK.

(Connected with Copper Work.)

Clere-story Frame.

It is understood that there will be a continuous sill and plate and upright posts (between every window) in the construction of the walls of the clere-stories, which sills, plates and posts belong to the roof construction proper, and not to the copper covering.

Openings.

It is also understood that framed openings will be left in the construction of the roofs for the skylights and ventilators.

Framework and Furring.

The copper worker is to do all other framework and furring for the clere-stories, all framework and furring for the walls of the skylights, and for the ventilators, hip and ridge mouldings, finials, and for all copper ornamentation throughout, and for the ceiling lights on the inside; and where they are not particularly specified or shown in drawings, they are to be of suitable size, strength, and distance apart to ensure a thorough and stable first class job in every particular.

Forms.

All the frames and forms are to be of the best wrought iron, except such cast iron forms as may be required to keep hip and other similar mouldings in place, where wrought iron may not answer the purpose as well.

General Construction.

No woodwork is to be allowed in this construction, and, consequently, all braces, forms, angles, ties and supports must be of metal, bolted, riveted, or brazed together, neatly and securely.

SKYLIGHTS.

There are to be four peak skylights over the central part of building, and one hipped skylight on the rear flat pitched roof, and eight flat skylights on the inner slope of end or pavilion roof. Number.

The ribs and frames are to be made of T and L wrought iron of sufficient strength, fitted, riveted, and put together in the very best manner. Framework.

The sides are to be covered with heavy boiler iron, thoroughly riveted, and the flashing is to be done with 16 oz. copper and 4 lb. lead. Sides.

They are to have copper gutters on the inside, with suitable outlets to carry off condensation. Gutters.

The skylights are to be glazed with one-half inch rough hammered glass, set in the best manner in cement putty. Glazing.

CEILING LIGHTS.

The ceiling lights are to be arranged as shown by the plans. Arrangement.

In Picture Gallery No. 1, the ceiling light is to extend the whole length of the room. Gallery No. 1.

In Gallery No. 2 there are two ceiling lights. Gallery No. 2.

(*Memo.* The railing around these, in the room above, belongs to stair contract.)

In the 3d story Gallery the ceiling lights extend to within 3 feet of each end of the room. 3d story Gallery.

There are to be square ceiling lights in the 2d story hall and in the small room adjoining Tosti Collection room, in 2d story. Other Lights.

The ribs and framework of these ceiling lights are to be made in the most thorough manner, similar to the skylights, of T and L wrought iron. Framework.

The under part of the ribs and around the sides are to be finished with heavy galvanized iron mouldings and gutters to carry off condensation, with suitable outlets. Inside Finish.

The sides of the ceiling light openings or well rooms are to be covered with galvanized iron, No. 22, perforated for ventilation, with ornamental openings, as per detail drawings. Ventilation.

The glazing of the ceiling lights belongs to the painter's contract. Glazing.

IRON FURRING FOR LATHING.

The coved portion of ceiling of Picture Gallery, No. 1, in 2d story, is to have iron furrings or forms placed beneath every trussed rafter and attached thereto or else forming part of the construction of the trusses, with sufficient intermediate forms and horizontal ties to make complete furring for attaching the wire lathing. It is all to be thoroughly secured to the walls and bolted or strapped to the rafters. Coved Ceiling of Gallery No. 1.

The ceiling joist of the two rooms in the rear of this gallery are to have iron beams, to the under side of which plank furrings are to be attached for wire lathing. Rear Rooms.

WIRE LATHING.

The ceilings of the Picture Gallery, No. 1, in 2d story, the two rooms in the rear of same, the Ceramic Gallery, and the flat and sloping ceilings of the 3d story gallery, and also the coved part of all ceilings, are to be lathed with best wire lathing, of quality and mesh like sample in the office of the architects, put on in the very best manner, to the approval of the superintendents. Sample.

PLASTERING UNDER ROOFING.

The plastering to prevent condensation, &c., dripping of moisture, which may be required upon the under side of the roof, in various places, will not be included in these contracts. Condensation.

IRON CRESTINGS.

The iron crestings, except the finials on the top of the ventilators, are not to be included in this contract. Finials.

STAIRS.

From the vestibule to the main floor the steps are to be of marble and belong to "Vestibule Work," but the iron stair builder is to furnish and fit the stringers or carriages for them, which are to be of heavy wrought iron, four in number; the upper rail shaped to conform to the under side of treads and risers, and the lower rail straight and welded to the upper. Vestibule. Marble Steps. Iron Carriages.

They are to have flanges with all necessary bolt and screw holes drilled, so that the marble work may be thoroughly secured, and are to be properly bolted and fastened to the iron floor beams at top and bottom. Flanges.

There are to be three (3) iron staircases, viz.: the principal staircase, opposite entrance, and two flights of circular stairs from the 2d story to the 3d story gallery, on Dartmouth Street end. Iron Stairs.

For particular details and construction of all the stairs, see working drawings. Reference.

The principal staircase consists of one flight from basement to 1st floor; one thence to the intermediate landing, and two therefrom to the 2d floor. Principal Stairs.

The strings are to be made of wrought iron beams and plates, bolted together, making panelled work, with cast iron mouldings and ornaments. Strings.

There are to be half strings against the walls, — properly anchored. Half Strings.

The carriages are to have flanges or shoes at the ends, securely bolted to the floor beams or girders. Flanges.

The facings of the well rooms are to be of wrought iron, panelled, with mouldings and ornamentation to correspond with strings. The lower mouldings are to extend down to receive the plastering below. Well Room Facings.

The treads are to be not less than three-eighths ($\frac{3}{8}$) of an inch thick, with moulded nosings and corrugated or cut upper surfaces, with margins all around. Treads.

The risers are to be not less than five-sixteenths of an inch ($\frac{5}{16}$) thick, with perforated ornamentation on the face and a moulded ornament at the ends. Risers.

The balustrade from 1st to 2d floor is to be of cast iron, of the very best quality of fine casting, with wrought iron flat bars at top and bottom, thoroughly bolted and secured to balustrade and to the treads of stairs, and at the ends in suitable manner to the walls. The upper rail is to be properly drilled to attach the mahogany rail when fitted and put up by the carpenter. Principal Balustrade.

The balustrade, from basement to the 1st floor, is to have balusters well secured to the steps and to an upper wrought iron bar, which is also to be covered by a wooden rail. Basement Balustrade.

The circular stairs are to have cast iron, moulded strings, with a wrought iron plate $\frac{1}{2}$ inch by 2 inches, let in, thoroughly bolted to each other. Circular Stairs.

The ends and faces of the risers, which are to be $\frac{1}{4}$ inch thick, are to be plain panelled. Risers.

The treads are to be $\frac{3}{8}$ of an inch thick, corrugated, with plain margins all around. Treads.

The Newel posts, at the bottom, are to be of cast iron, as per drawings, well secured to the floor. Newel Posts.

Balusters are to be well secured to the steps, with suitable nuts and screws, and are to be drilled at top, to secure them to the wooden rail, to be furnished and fitted by the carpenter. Balusters.

All bolt heads, where exposed, are to be smoothed or ornamented, as per drawings. Bolts.

All the work is to be of the very best description of workmanship and castings to make a first class and complete job in every particular. Character.

The balustrades around the ceiling lights in the 3d story end gallery floor, are to be of cast iron with cast iron posts well secured to the floor, and with wrought iron rails at top and bottom. The upper rails are to be drilled to attach the wooden hand-rail, when fitted by the carpenter. The lower rails to be secured to the floor at proper intervals. Balustrade in Gallery.

STEAM HEATING AND VENTILATION.

Single Boiler.

The portion of the building to be erected under present contracts is only the centre and right wing of the front on St. James Avenue, besides the dressing room in basement, lift, and adjoining passages. Consequently only one of the two boilers, designated on plans, will be required.

The contractor is to furnish the boiler and all the heating apparatus and utensils complete, ready for use.

Position.

The position of the boiler and radiators is shown on the plans.

Boiler Room Floor.

The boiler room floor is about four feet below the main cellar floor.

System.

The System is to be part direct and part indirect radiation.

Indirect Radiation.

The Indirect is obtained by flues in the two walls on either side of the Entrance and Staircase Hall.

Direct.

The Direct by radiators where indicated on the plans.

The Main Hall in 1st and 2d stories, and Ceramic Gallery is to be heated entirely by indirect radiation; the adjoining rooms by part indirect and part direct, and the remainder of the building by direct entirely.

Setting Boiler.

The mason is to set the boiler, but the contractor for the heating apparatus is to lend the usual assistance and superintend the work.

Boiler.

The boiler is to be a horizontal tubular, made of best locomotive fire-box iron for bottom and ends, and C, No. 1, for the rest; the shell double riveted, to be tested to 150 lbs. cold water pressure, and insured by the Hartford Boiler Iusurance Company, for one year, free of cost.

Testing.

Insurance.

Size.

Apparatus.

It is to be 48 in. in diameter, 16 ft. long, with 49 tubes, 3 in. diameter, 15 ft. long, furnished complete, with brass steam gauge, $7\frac{1}{2}$ in. water gauge, 3 gauge cocks, 4 in. safety valve, 4 in. steam stop valve, $1\frac{1}{2}$ in. blow-off cock, and an automatic damper regulator.

Indirect Radiators.

The Indirect Radiators are to be in stacks placed near the basement ceiling and properly connected with the upright flues. The boxes covering the stacks to be lined with IX tin, and the flues thence to the 1st and 2d floors to be of IX tin, 12×16, or as large as the plastered flues will admit, securely set and neatly fitted to receive the registers.

Boxes.

Flues.

Registers.

The Registers for the indirect radiation to be of best black, of suitable size, and provided with wire nettings.

Supply and Return Pipes.

All Radiators and the stacks of the same (where one is over another) are to be connected with separate steam supply and return pipes, with valves in each stack or radiator, and each is to have an air valve.

Mains.

Each Rising Main leading from horizontal main is to have its corresponding return pipe, connecting with main return pipe, to

which radiators shall be connected, and the rising mains shall drip into the returns at bottom with valves in each riser and return.

Basement Radiators.

The Basement radiators are to be same as the others placed upon the floor, and are to have separate connections of supply and return, and the water of condensation returned to boiler without pumping.

Valves and Cocks.

Furnish and connect handsomely finished radiators, bronzed, each with nickel-plated supply and return valves and air cocks.

Surface.

The Indirect heating surface is to be at least 2000 square feet.

Bronzing Pipes.

All Pipes are to be thoroughly and handsomely bronzed, where exposed.

Required Temperature.

The contractor for steam heating is to do and furnish everything, including tin work, complete, except mason and carpenter work, and is to guarantee to heat the building to a temperature of 70° ; also, that the apparatus shall work without noise and be entirely successful.

Ventilating Registers.

Provide all the ventilating registers shown upon the plans, including those in the basement floors. They are to be best black, set in suitable frames.

VESTIBULE FINISH.

Walls.

The walls of the Vestibule are to be finished or lined up with brick and stone, ornamented with pilasters, columns, arches and mouldings, as shown by working drawings. The mason is to lay the brick and set all the stone work (see pp. 7 and 8), except the tiles.

Masonry.

Panels.

The panels shown to be plastered are to be left rough, either for plaster or terra cotta work, to be inserted hereafter.

Marble.

The steps, buttresses, the high plinth or base around the walls, the inner door thresholds, and the shafts of columns are to be of marble.

Freestone.

The capitals of columns, mouldings, ornamented courses, and arch stones, are to be of the very best freestone, free from all imperfections.

Workmanship.

All the carving and stone cutting in the vestibule is to be of the best quality of workmanship.

MARBLE WORK.

Vestibule.

The marble worker is to furnish all the above marble work for the vestibule, and fit the same for the mason to set.

Polished Work.

It is all to be handsomely polished, except such parts as may be designated in the drawings, which are to be fine cut.

Tiles.

Furnish and set marble tiles, black and white, for the two dressing rooms in the basement, and red and white tiles for the 1st story Hall and adjoining passage and for the intermediate landing of principal stairs.

The stair landing is to have a border, as per plans, and moulded nosing at the steps. Stair Landing.

Provide and set a black marble plinth around the walls in 1st story Hall passage and the intermediate landing, 10 inches high. There is to be a plinth 6 inches high in the basement dressing rooms. Plinths.

Provide and set white marble thresholds for the openings or doors which open from the hall, 1st story. Thresholds.

Make marble borders around the registers, and do all fitting around openings in floors. Borders.

ADDITIONAL MISCELLANEOUS.

CARPENTRY.

Make and fix wooden hand-rails for the circular stairs and for the railings around lights in the floor of 3d story end Gallery, as per drawings. Stair-rails.

Make a railing around the light in the floor of centre loft, over Hall, of brown ash, with posts, rails, and balusters, as per drawings. Railing.

Make panelled doors of cherry to the recesses in the walls, for hydrants and conductors, with simple architraves around them. Doors to Recesses.

Make the screens in Basement dressing rooms, 7 ft. high, of matched sheathing, with corner posts, and moulded caps and sills. Screens.